

WHAT IS CLAIMED IS:

1. A power controlling system, comprising:
 - a power supply means for rectifying and/or compensating an input power;
 - a plurality of transformers for receiving power from the power supply means and for outputting a voltage therefrom;
 - a controller for controlling a power circuit and for outputting a plurality of DPM control signals according to DPM mode;
 - a power control means connected to the transformers and the controller, for controlling power to other elements except the controller according to the DPM mode; and
 - a transformer controller for outputting power to control the transformers under the control of the power control means.
2. The system according to claim 2, further comprises a main power switch for controlling the transformers by an output of the transformer controller.
3. The system according to claim 1, wherein the power supply means comprises a power factor controller and a rectifier, which are connected between an input power and a primary side of a main transformer, for feeding an output voltage to the main transformer by compensating a power factor and/or smoothing an input power from outside.

4. The system according to claim 1, wherein the transformers comprises a main transformer and a sub transformer, and a primary side thereof receives a DC voltage from the rectifier and a secondary side thereof outputs at least one voltage for use in each circuit in a display.

5. The system according to claim 4, wherein one end of the primary side of the main transformer is connected to the rectifier and the other end is connected to a main power switch.

6. The system according to claim 4, wherein one end of the primary side of the sub transformer is connected to the rectifier and the other end is connected to a sub power controller.

7. The system according to claim 4, wherein the power control means comprises at least one power-saving part that is connected to an arbitrary point of a secondary side of the main transformer, and another separate power-saving part connected to the at least one power-saving part.

8. The system according to claim 7, wherein a first power-saving part out of the at least one power-saving part is connected to an arbitrary point of the secondary side of the

main transformer, and outputs a predetermined voltage in response to a first DPMF signal that is output from the controller or Micom according to a DPM mode.

9. The system according to claim 8, wherein the first power-saving part comprises at least one transistor (Q1, Q2) and at least one resistor.

10. The system according to claim 9, wherein an emitter of Q1 is connected to an arbitrary point of a main transformer via a diode (D1).

11. The system according to claim 9, wherein a collector of Q1 is an output terminal for outputting a predetermined voltage, and a base of Q1 is connected to a collector of Q2 via a resistor.

12. The system according to claim 9, wherein a DPMF signal, which is a first DPM signal of Micom the controller, is input to the base of Q2 via a resistor.

13. The system according to claim 9, wherein the transistor Q1 and Q2 is a PNP transistor and a NPN transistor, respectively.

14. The system according to claim 7, wherein a second power-saving part out of the at least one power-saving part is connected to an arbitrary point of the secondary side of

the main transformer, and outputs a predetermined voltage in response to a DPMS signal that is a second DPM signal output from Micom the controller according to a DPM mode.

15. The system according to claim 14, wherein the second power-saving part comprises at least one transistor (Q3, Q5), a diode (D5), and at least one resistor.

16. The system according to claim 15, wherein the transistor Q3 and Q5 is a PNP transistor and a NPN transistor, respectively.

17. The system according to claim 16, wherein an emitter of Q3 is connected to an arbitrary point of a secondary side of a main transformer via a diode (D2).

18. The system according to claim 16, wherein a base of Q3 is connected to a collector of Q5 via a resistor.

19. The system according to claim 16, wherein a second DPMS signal of Micom is input to a base of Q5.

20. The system according to claim 16, wherein a collector of Q5 is connected to a base of Q3 via a resistor.

21. The system according to claim 16, wherein a resistor is inserted between an emitter and a base of Q3.
22. The system according to claim 15, wherein a cathode of the diode is connected to an emitter of Q3, and an anode of the diode is connected to a secondary side f a sub transformer via a different diode.
23. The system according to claim 7, wherein a third power-saving part out of the at least one power-saving part is connected to the first power-saving part and/or the second power-saving part, and outputs a predetermined voltage.
24. The system according to claim 23, wherein the third power-saving part comprises at least one of a transistor Q4, a Zener diode (ZD1), and a diode (D3).
25. The system according to claim 24, wherein the transistor is a NPN transistor.
26. The system according to claim 25, wherein a base of the transistor is connected to a collector of a first power-saving part via a resistor.
27. The system according to claim 25, wherein a collector of the transistor is connected to a collector of Q3 of a second power-saving part.

28. The system according to claim 24, wherein an anode of the Zener diode (ZD1) is connected to an anode of the diode (D3), and a cathode of the Zener diode is connected to a base of Q4.

29. The system according to claim 24, wherein an anode of the diode (D3) is connected to an anode of the Zener diode (ZD1).

30. The system according to claim 1, wherein the transformer controller comprises at least one of a light-transmitting part and a light-receiving part.

31. The system according to claim 30, wherein the light-receiving part is connected to one end of the second power-saving part and to the secondary side of the sub transformer.

32. The system according to claim 30, wherein an operation of the light-transmitting part is controlled by an operation of the second power-saving part.

33. The system according to claim 30, wherein the light-transmitting part comprises a diode (D4) and a photo diode (PD1).

34. The system according to claim 33, wherein a cathode of the diode is connected to a base of Q3 of a second power-saving part, and an anode of the diode is connected to a cathode of the photo diode (PD1).

35. The system according to claim 33, wherein an anode of the photo diode (PD1) is connected to a secondary side of a sub transformer via a diode (D6).

36. The system according to claim 30, wherein the light-receiving part is connected to a main power switch and a tertiary side of a sub transformer.

37. The system according to claim 30, wherein the light-receiving part comprises at least one of a diode (D7), a resistor (R7), and a phototransistor (PT1).

38. The system according to claim 37, wherein an emitter of the phototransistor (PT1) is connected to a power of a main power switch, and a collector of the phototransistor (PT1) is connected to a cathode of the diode via the resistor.

39. The system according to claim 37, wherein an anode of the diode is connected to one end of a tertiary side of a sub transformer (T2).

40. The system according to claim 30, wherein a photo diode (PD1) of the light-transmitting part and a phototransistor (PT1) of the light-receiving part are used as a light-emitting element and a light-receiving element of a photo coupler, respectively.

41. A power controlling system having a main transformer and a sub transformer, which, in response to a first and second DPM signals output from a display controller, induces from a AC voltage being input from outside at least one voltage for use in a display from secondary sides of the main transformer and the sub transformer and outputs the induced voltages, the system comprising:

a first power-saving part connected to an arbitrary point of a secondary side of the main transformer, for outputting a predetermined voltage in response to the first DPM signal output from the controller;

a second power-saving part connected to an arbitrary point of a secondary side of the main transformer, for outputting a predetermined voltage in response to the second DPM signal output from the controller;

a main power switch connected to one end of a primary side of the main transformer, for controlling an operation of the main transformer; and

a transformer controller for controlling an operation of the main power switch according to an operation of the second power-saving part.

42. The system according to claim 41, further comprising:

a third power-saving part connected to the first and second power-saving parts, wherein the third power-saving part is turned off when the first power-saving part is turned off.

43. The system according to claim 41, wherein when an applied signal from the transformer controller to the second power-saving part is a low level signal, a corresponding switching means is turned off, and an applied voltage to the transformer controller becomes greater than a voltage of another switch connected to the switching means.

44. The system according to claim 43, wherein when DPMF/DPMS signals from the transformer controller is “Low” and “Low”, Q5 Transistor of the second power-saving part is turned off, and a base voltage of Q3 becomes greater than an applied voltage (+B7) to the transformer controller, cutting off a current to a PD1, whereby a PT1 and a main power switch are turned off.

45. The system according to claim 41, further comprises a sub power controller for controlling the sub transformer that operates by an applied voltage from a rectifier.

46. The system according to claim 45, wherein the transformer controller’s voltage is output, being induced by an applied voltage to a primary side of the sub transformer.

47. A power controlling method, comprising :

determining an input DPM mode to a power-saving part used as a power control means;

when input DPM signals are all low level signals, controlling an output of the power-saving part according to the input signals;

under an operation of the power-saving part or an output thereof, controlling at least one of the power-saving part, another power-saving part, and a transformer controller used as a main power controller; and

after controlling the main power controller, operating a sub power to supply power only to the controller.

48. The method according to claim 47, wherein input DPM signals are first and second DPMS signals.

49. A power controlling method, comprising :

inputting at least one low-level DPM signal to a power-saving part;

controlling the power-saving part, another power-saving part, or a light-transmitting part/a light-receiving part of a main power controller, under an operation of the power-saving part or an output thereof;

controlling a main transformer, in a main power switch, by using the controlled output; and

operating a sub transformer to apply a voltage only to Micom used as a controller.